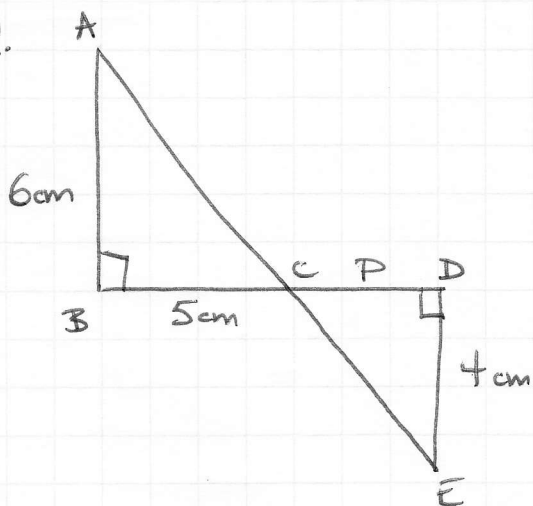


P416

2.



$$\angle ACB \sim \angle ECD \quad (\text{OAT})$$

$$\angle B = \angle D \quad (\text{given})$$

$$\boxed{AA \sim}$$

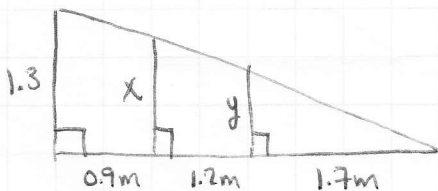
$$\triangle ABC \sim \triangle EDC$$

$$\frac{P}{5} = \frac{4}{6}$$

$$P = \frac{4 \times 5}{6}$$

$$P \doteq 3.33$$

#3.



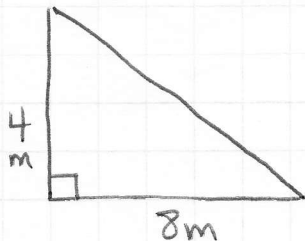
$$\frac{y}{1.7} = \frac{1.3}{3.8}$$

$$y \doteq 0.58$$

$$\frac{x}{2.9} = \frac{1.3}{3.8}$$

$$x \doteq 0.99$$

#5.



$$c^2 = 4^2 + 8^2$$

$$\sqrt{c^2} = \sqrt{80}$$

$$c \doteq 8.9$$

$$a) \cos A = \frac{8}{8.9}$$

$$\sin A = \frac{4}{8.9}$$

$$\tan A = \frac{4}{8}$$

$$b) \tan A = \frac{4}{8}$$

$$A = \tan^{-1}\left(\frac{4}{8}\right)$$

$$A \doteq 26.57^\circ$$

$$A \doteq 27^\circ$$

#6. a) $\tan 46^\circ = \frac{x}{14.2}$

$$x = 14.2 \tan 46^\circ$$

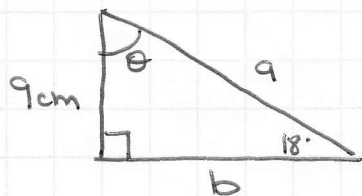
$$x \approx 14.7$$

b) $\cos 29^\circ = \frac{17.3}{x}$

$$x = \frac{17.3}{\cos 29^\circ}$$

$$x \approx 19.78$$

#9.



$$\sin 18^\circ = \frac{9}{a}$$

$$a = \frac{9}{\sin 18^\circ}$$

$$a \approx 29.12$$

$$\tan 18^\circ = \frac{9}{b}$$

$$b = \frac{9}{\tan 18^\circ}$$

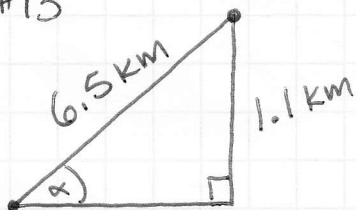
$$b \approx 27.7$$

$$\tan \theta = \frac{27.7}{9}$$

$$\theta = \tan^{-1} \left(\frac{27.7}{9} \right)$$

$$\theta \approx 72^\circ$$

#11 #13



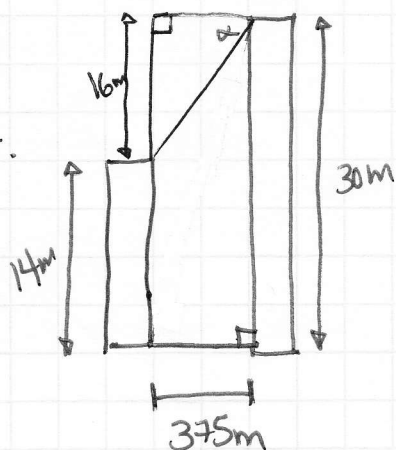
$$\sin \theta = \frac{1.1}{6.5}$$

$$\theta = \sin^{-1} \left(\frac{1.1}{6.5} \right)$$

$$\theta \approx 9.7^\circ$$

$$\theta \approx 10^\circ$$

#14.



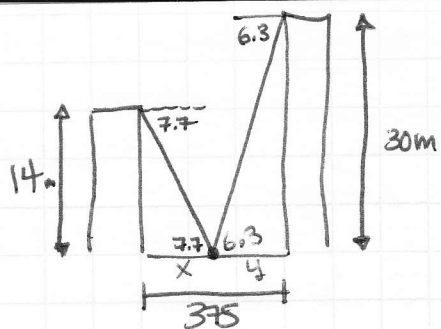
a) $\tan \alpha = \frac{16}{375}$

$$\alpha = \tan^{-1} \left(\frac{16}{375} \right)$$

$$\alpha \approx 2.44^\circ$$

$$\alpha \approx 2^\circ$$

14b)



$$\tan 7.7 = \frac{14}{x}$$

$$x = \frac{14}{\tan 7.7}$$

$$x \approx 103.55$$

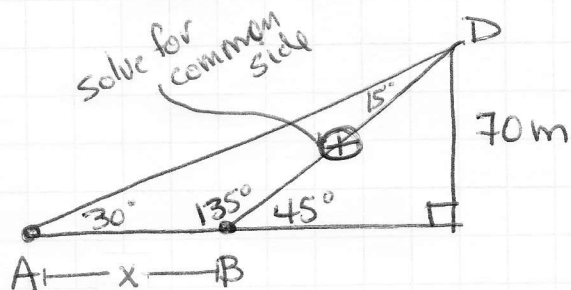
$$\tan 6.3 = \frac{30}{y}$$

$$y = \frac{30}{\tan 6.3}$$

$$y \approx 271.74$$

∴ the taller guard tower is farther away.

16.



$$\sin 45^\circ = \frac{70}{x}$$

$$x = \frac{70}{\sin 45^\circ}$$

$$x \approx 98.99$$

$$\frac{x}{\sin 15^\circ} = \frac{98.99}{\sin 30^\circ}$$

$$x = \frac{98.99 \sin 15^\circ}{\sin 30^\circ}$$

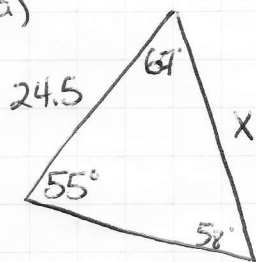
$$x \approx 51.24$$

∴ the distance between A and B is 51m.

P453 # 2, 3, 7, 8, 11, 12

2. a) correct
b) correct
c) correct
d) not correct

#3. a)



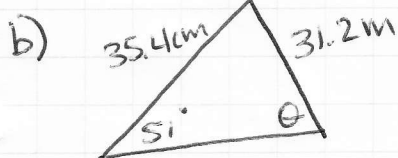
$$= 180^\circ - 67^\circ - 58^\circ$$

$$= 55^\circ$$

$$\frac{X}{\sin 55^\circ} = \frac{24.5}{\sin 58^\circ}$$

$$X = \frac{24.5 \sin 55^\circ}{\sin 58^\circ}$$

$$X \approx 23.67$$



$$\frac{\sin \theta}{35.4} = \frac{\sin 51^\circ}{31.2}$$

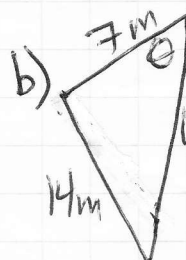
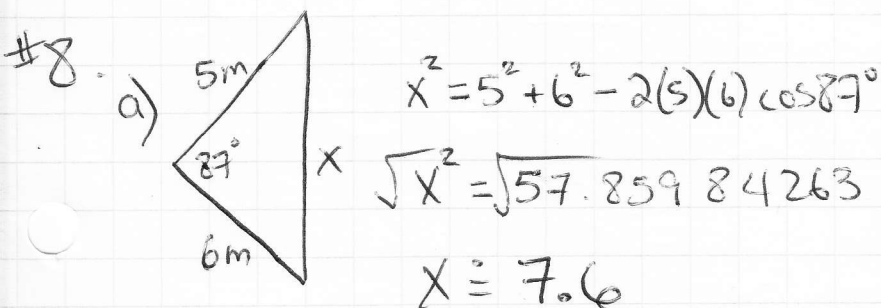
$$\sin \theta = \frac{35.4 \sin 51^\circ}{31.2}$$

$$\theta \approx 62$$

#7. a) $a^2 = b^2 + c^2 - 2bc \cos B$ (Wrong) side a & angle A start and end formula

b) $c^2 = a^2 + b^2 - 2ab \cos C$ (GOOD)

c) $b^2 = a^2 + c^2 - 2ac \cos B$ (GOOD)

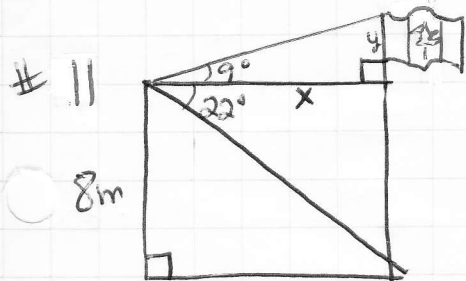


$$\cos \theta = \frac{7^2 + 15^2 - (14)^2}{2(7)(15)}$$

$$\cos \theta = \frac{78}{210}$$

$$\theta = \cos^{-1} \left(\frac{78}{210} \right)$$

$$\theta \approx 68^\circ$$



$$\tan 22^\circ = \frac{8}{x}$$

$$x = \frac{8}{\tan 22^\circ}$$

$$x \approx 19.8$$

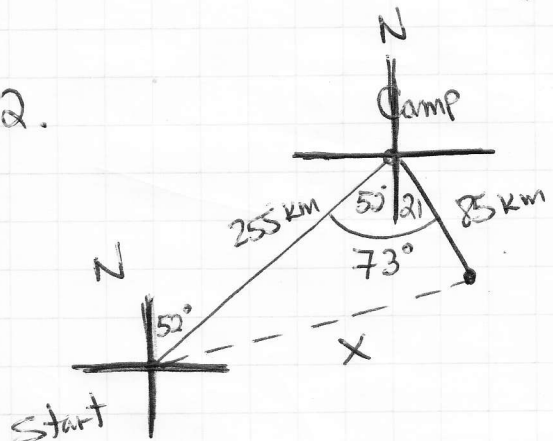
$$\tan 9^\circ = \frac{y}{19.8}$$

$$y = 19.8 \tan 9^\circ$$

$$y \approx 3.14$$

∴ the flag pole is 11m

#12.



$$x^2 = 255^2 + 85^2 - 2(255)(85) \cos 73^\circ$$

$$\sqrt{x^2} = \sqrt{59575.6866}$$

$$x \approx 244$$

$$\begin{aligned} \text{Perimeter} &= 255 + 85 + 244 \\ &= 584 \end{aligned}$$

∴ the total distance traveled was 584 km.